

CLAIMS

1. A seamless polishing apparatus for utilization in chemical mechanical polishing, comprising:

5 a polishing pad, the polishing pad being shaped like a belt and configured to have no seams; and

a base belt, the base belt including a reinforcement layer and a cushioning layer;

wherein the cushioning layer is an intermediary layer between the polishing belt pad and the base belt.

10 2. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, wherein the polishing pad is a polymeric material.

15 3. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 2, wherein the polymeric material is polyurethane.

4. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, wherein the cushioning layer is a sponge like material.

20 5. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, wherein the cushioning layer is an open-celled polyurethane material.

6. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, wherein the reinforcement layer is a steel layer.

7. A seamless polishing apparatus for utilization in chemical mechanical
5 polishing as recited in claim 1, wherein the polishing pad is about 40 mils in thickness.

8. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, wherein the cushioning layer is about 20 mils in thickness.

10 9. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, further comprising:

a cap covering an adhesive film between the base belt and the polishing pad.

10. A seamless polishing apparatus for utilization in chemical mechanical
15 polishing as recited in claim 9, wherein the cap is a polymeric material.

11. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, further comprising:

a cover configured to seal off an adhesive film between the base belt and the
20 polishing pad from moisture intrusion.

12. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 1, wherein the base belt and the polishing pad are attached by a first adhesive film, and the reinforcement layer and the cushioning layer are attached by a second adhesive film.

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13. A seamless polishing apparatus for utilization in chemical mechanical polishing, comprising:

a polishing pad, the polishing pad being shaped like a belt and configured to have no seams; and

10 a base belt, the base belt including a reinforcement layer and a cushioning layer, the reinforcement layer being a steel layer;

wherein the cushioning layer is an intermediary layer between the continuous pad and the reinforcement layer.

15 14. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 13, wherein the polishing pad is a polymeric material.

15. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 13, wherein the polishing pad is between about 30 mils and about 100 mils in thickness.

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16. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 13, wherein the cushioning layer is between about 10 mils and about 100 mils in thickness.

17. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 13, wherein the reinforcement layer is between about 5 mils and about 50 mils in thickness.

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18. A polishing structure for utilization in chemical mechanical polishing, comprising:

a polishing pad, the polishing pad being shaped like a belt and configured to be a contiguous unit, the polishing pad being made of a polymeric material; and

10 a base belt, the base belt including a reinforcement layer and a cushioning layer, the reinforcement layer being a steel layer;

wherein the cushioning layer is an intermediary layer between the polishing pad and the reinforcement layer, the cushioning layer being a polymeric material.

15 19. A polishing structure for utilization in chemical mechanical polishing as recited in claim 18, wherein the steel layer and the cushioning layer are attached by a first adhesive film, and the cushioning layer and the polishing pad are attached by a second adhesive film.

20 20. A seamless polishing apparatus for utilization in chemical mechanical polishing, comprising:

a polishing pad, the polishing pad being shaped like a belt and configured to be a contiguous unit and to have grooves on a pad surface, the polishing pad being made up of polyurethane; and

a base belt, the base belt including a reinforcement layer and a cushioning layer, the reinforcement layer being a steel layer, the reinforcement layer and the cushioning layer being attached by way of a first adhesive film, the base belt and the polishing pad being attached by way of a second adhesive film;

5 wherein the cushioning layer is an intermediary between the polishing pad and the reinforcement layer, the cushioning layer being a polyurethane material.

21. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 20, wherein the polishing pad is between about 40 mils in
10 thickness.

22. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 20, wherein the cushioning layer is about 20 mils in
15 thickness.

23. A seamless polishing apparatus for utilization in chemical mechanical polishing as recited in claim 20, wherein the reinforcement layer is about 20 mils in thickness.

20 24. A seamless polishing apparatus for utilization in chemical mechanical polishing, comprising:

a polishing pad, the polishing pad being shaped like a belt and configured to be a contiguous unit;

a base belt, the base belt including a reinforcement layer and a cushioning layer;
and

a cap covering an adhesive film between the base belt and the polishing pad;

wherein the cushioning layer is an intermediary between the continuous pad and

5 the base belt.

25. A seamless polishing apparatus for utilization in chemical mechanical
polishing as recited in claim 24, wherein the polishing pad is polyurethane.

10 26. A seamless polishing apparatus for utilization in chemical mechanical
polishing as recited in claim 24, wherein the reinforcement layer is a steel layer.

27. A seamless polishing apparatus for utilization in chemical mechanical
polishing, comprising:

15 a polishing pad, the polishing pad being shaped like a belt and configured to have
no seams, and the polishing pad being made of a polymeric material, and the polishing
pad being between about 30 mils and about 100 mils in thickness and configured to have
a grooved top surface; and

20 a base belt, the base belt including a reinforcement layer and a cushioning layer,
the reinforcement layer being a stainless steel layer, and the cushioning layer being
between about 10 mils and about 100 mils in thickness, and the reinforcement layer being
between about 5 mils and 50 mils in thickness;

wherein the cushioning layer is an intermediary layer between the polishing belt
pad and the base belt.

28. A method for generating a polishing pad structure for utilization in chemical mechanical polishing, comprising:

providing a reinforcement layer;

applying a first adhesive film over the reinforcement layer;

5 attaching a cushioning layer on the first adhesive film;

applying a second adhesive film over the cushioning layer;

attaching a seamless polishing pad on the second adhesive film; and

curing the polishing pad structure.

10 29. A method for generating a polishing pad structure for utilization in chemical mechanical polishing as recited in claim 28 wherein the reinforcement layer is a steel layer.

15 30. A method for generating a polishing pad structure for utilization in chemical mechanical polishing as recited in claim 28 wherein the first adhesive layer and the second adhesive layer is a rubber based adhesive.

20 31. A method for generating a polishing pad structure for utilization in chemical mechanical polishing as recited in claim 28 wherein the seamless polishing pad is generated by pouring a polymeric gel into a mold.

32. A method for generating a polishing pad structure for utilization in chemical mechanical polishing as recited in claim 28 wherein the seamless polishing pad is a polymeric material.

33. A method for generating a polishing pad structure for utilization in chemical mechanical polishing as recited in claim 28 wherein the curing includes heating the polishing pad structure.

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34. A method for generating a polishing pad structure for utilization in chemical mechanical polishing, comprising:

providing a reinforcement layer;

applying a first adhesive film on the reinforcement layer;

10 attaching a cushioning layer on the first adhesive film;

applying a second adhesive film on the cushioning layer;

attaching a seamless polymeric polishing pad on the second adhesive layer, the polymeric polishing pad having a grooved top surface; and

curing the polishing pad structure between about 12 hours to about 48 hours at a temperature of between about 150 F to 300 F.

35. A method for generating a polishing pad structure for utilization in chemical mechanical polishing, comprising:

providing a reinforcement layer;

20 applying a first adhesive film on the reinforcement layer;

attaching a cushioning layer on the first adhesive film;

applying a second adhesive film on the cushioning layer;

attaching a seamless polymeric polishing pad on the second adhesive layer, the polymeric polishing pad having a grooved top surface, the seamless polishing pad being generated by pouring a polymeric gel into a mold; and

curing the polishing pad structure for about 20 hours in a temperature of about

5 200 F.

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